

# NASA Planetary Biology Internship

## Objectives of NASA Space Exploration and the Planetary Biology Internship Program

The objectives of NASA space exploration encompasses three goals that the National Academy of Sciences placed before the scientific community:

1. To determine the origin and evolution of the solar system.
2. To determine the origin and evolution of life.
3. To clarify the nature and processes that shape the Earth's terrestrial environment for humans.

## Purposes and Scope of the Planetary Biology Internship Program

The aim of the Planetary Biology Internship program is to provide opportunities for graduate students to take part in planetary biology research at NASA centers and universities. The pursuit of such studies is expected to broaden the base of this new science by encouraging people in many different fields to take part. Students accepted in the PBI program will be expected to carry out research with a NASA-sponsored investigator for eight weeks usually during the summer months. Typical programs in which interns may become involved include: global ecology and remote sensing; microbial ecology and biomineralization; advanced life support; origin and early evolution of life. Applicants may choose to work with sponsors other than those listed below provided they are conducting NASA-supported research.

## NASA CENTERS

### Ames Research Center, Moffett Field, CA

- B. Bebout – microbial mats
- D. DesMarais - microbial mat geochemistry
- L. Jahnke - molecular evolution
- R. Mancinelli - microbial ecology
- C. McKay - ecopoiesis
- D. Peterson - remote sensing
- A. Pohorille - computerized simulations on the origin of life
- J. Trent - extremophile molecular biology

### Goddard Institute for Space Studies, NY

- J. Hansen - global climatology
- E. Matthews - climate and carbon cycle monitoring
- D. Peteet - paleoclimatology

### Goddard Space Flight Center Greenbelt, MD

- F. Hall – remote sensing

### Kennedy Space Flight Center, FL

- J.L. Garland - microbial ecology
- C.R. Hinkle - landscape ecology
- W. Knott - advanced life support
- R.M. Wheeler – life support

## Langley Research Center Hampton, VA

J.S. Levine - biogenic atmospheric gases

## Specialized Center of Research and Training in Exobiology (NSCORT) San Diego, CA

- G. Arrhenius, Scripps, UC San Diego (primordial geochemistry)
- J. Bada, Scripps, UC San Diego (biogeochemistry)
- G. Joyce, Scripps Research Inst. (RNA prebiotic chemistry)
- S. Miller, UC San Diego (prebiotic chemistry)
- L. Orgel, Salk Institute (prebiotic chemistry)

## New York Center for Studies on the Origins of Life, Troy, NY

J. Ferris, RPI (origins of life)

## University-associated scientists

- S. Awramik, UC Santa Barbara, CA (earliest life history)
- S. Cady, Portland State U., OR (stromatolites)
- E. Davidson, Woods Hole Res. Ctr., MA (soil microbial ecology)
- D. Deamer, UC Santa Cruz, CA (origin of membranes)
- P. Falkowski, Rutgers U. (photosynthetic bacteria)
- G. Fox, U. Houston, TX (molecular evolution)
- P. Gogarten, U. Connecticut (molecular evolution)
- J. Grotzinger, MIT, MA (stromatolite sedimentology)
- A. Knoll, Harvard U., MA (Prephanerozoic paleoecology)
- R. Kretsinger (U. Virginia) (calcium proteins)
- D. Lowe, Stanford U., CA (stromatolites)
- G. McDonald, JPL/Cal Tech (microbial ecology)
- M. Musgrave, U. Connecticut (plant space biology)
- K. Nealson, USC (microbial ecology)
- J. Stolz, Duquesne U., PA (microbial ecology)
- F. Taub, U. Washington (closed ecological systems)
- D. Usher, Cornell U., NY (prebiotic chemistry)
- S. Wofsy, Harvard U., MA (global carbon cycle)

## MBL/WHOI, Woods Hole, MA

- J. Hayes, (isotopic biogeochemistry)
- M. Sogin, (molecular evolution)

## Eligibility

Graduate students and senior undergraduates accepted to graduate school who are majoring in biology or other related sciences such as paleontology, atmospheric science, and geochemistry, with interests in planetary biology are eligible to apply for this program.

Applicants will be considered for awards without regard to race, creed, color, sex, national origin or handicap.

## Selection

Selection will be based on the following criteria:

1. Academic record
2. Career objectives and the match of interest of the applicant with the NASA-funded sponsor investigator.

Students should communicate with investigators prior to applying to the program. (Applicants are responsible for obtaining current addresses and phone numbers of sponsors.)

## Awards

Interns will receive a stipend of \$2800 for the 8 weeks of their participation in the program, and reimbursement for transportation costs not to exceed \$1100. The award is non-renewable.

## Application

Interested students should submit the enclosed application form by March 1, 2006, with the following documents

1. An official copy of transcripts for all undergraduate and graduate work.
2. Curriculum vitae
3. A brief typewritten description (1-2 pages) of academic goals and career plans, and an explanation of what is hoped to be accomplished through the internship experience.
4. Two letters of recommendation from faculty members that cover academic achievement, career potential and character.

Internships may not be used to continue graduate training at one's home institution. Completed forms and letters of recommendation are to be returned to the following address. Notification will be made the last week of April.

## PBI

**Office of Education  
Marine Biological Laboratory  
7 MBL Street  
Woods Hole, MA 02543-1015**

The Planetary Biology Internship program is supported by the Exobiology Program office, NASA Headquarters, Washington, DC. Questions concerning this program should be addressed to Michael F. Dolan at NASA PBI, Geosciences Department, University of Massachusetts, Amherst, MA 01003-5820, (413) 545-3223, (email: [pbi@geo.umass.edu](mailto:pbi@geo.umass.edu))

# PLANETARY BIOLOGY INTERNSHIP 2006 APPLICATION FORM

## Contact Information

Name: \_\_\_\_\_ Social Security #: \_\_\_\_\_ Birthdates: \_\_\_\_\_

Citizenship: \_\_\_\_\_ U.S. Permanent Resident? U yes U no

Primary Institutional Affiliation: \_\_\_\_\_

Current Institutional Address: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Telephone: \_\_\_\_\_

Fax: \_\_\_\_\_ e-mail: \_\_\_\_\_

Current Home Address: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Home Telephone: \_\_\_\_\_

## Education and research experience

Undergraduate College or University: \_\_\_\_\_ degree: \_\_\_\_\_ year: \_\_\_\_\_

Graduate (current or prospective): \_\_\_\_\_ degree: \_\_\_\_\_ year: \_\_\_\_\_

Research experience and area of specialization: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Special skills (electron microscopy, gas chromatography, etc.): \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

## Internship Preference

Location selected for internship: \_\_\_\_\_

Name of potential (sponsor): \_\_\_\_\_

## References

Please list the names and addresses of the two references who will provide letters of recommendation for you.

1. \_\_\_\_\_ 2. \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

The completed application, including your curriculum vitae; transcripts; two letters of recommendation; and a statement of your academic, career, and internship goals must be received by March 1, 2006 for consideration.